Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A phosphor sheet for a radiation detector provided to be attached to a photoelectric conversion film of the radiation detector, comprising:

a support having a sheet shape; and

a phosphor layer which ~~is provided on said support and~~ emits light in response to rays of radiation ~~by radiation rays~~ transmitted through a specimen, and including a layer coated on said support with powder of ~~contains~~ a rare earth oxysulfide phosphor activated by europium of concentration in a range of 0.01 mol% to 3.5 mol%,

wherein said phosphor layer has a surface that is configured to be layered on the photoelectric conversion film, wherein the photoelectric conversion film includes an amorphous silicon film or a single crystal silicon film, wherein the surface has surface roughness of 0.5 μm or less in average roughness Ra.

2. (Currently Amended) A phosphor sheet for a radiation detector according to claim 1,

wherein the europium concentration of [[in]] the rare earth oxysulfide phosphor is in a range of 0.1 mol% to 2.0 mol%.

3. (Currently Amended) A phosphor sheet for a radiation detector according to claim 1,

wherein the rare earth oxysulfide phosphor has a composition substantially expressed by:

general formula: $(R_{1-a}Eu_a)_2O_2S$

(In the formula, R expresses at least one kind of element selected from Gd, Lu, Y and La, and a is a number which satisfies: $1 \times 10^{-4} \leq a \leq 3.5 \times 10^{-2}$).

4. (Original) A phosphor sheet for a radiation detector according to claim 1,

wherein the rare earth oxysulfide phosphor comprises at least one selected from a europium-activated gadolinium oxysulfide phosphor and a europium-activated lutetium oxysulfide phosphor.

5. (Currently Amended) A phosphor sheet for a radiation detector according to claim 1, wherein ~~said phosphor layer comprises a layer coated with powder of~~ the rare earth oxysulfide phosphor~~, and the rare earth oxysulfide phosphor~~ powder has an average particle size in a range of 2 μm to 15 μm.

~~6. (Canceled).~~

7. (Canceled).

8. (Currently Amended) A phosphor sheet for a radiation detector according to claim [[7]] 1, wherein the average roughness Ra of the surface of said phosphor layer is 0.3 μm or less.

9. (Currently Amended) A phosphor sheet for a radiation detector according to claim [[7]] 1, wherein ~~said phosphor layer comprises a layer coated with powder of the phosphor, and~~ a filling factor of the phosphor powder in the layer is in a range of 60% to 80%.

10. (Canceled).

11. (Currently Amended) A radiation detector, comprising:

a phosphor sheet configured to convert ~~according to claim 1 converting~~ radiation rays transmitted through a specimen into light, wherein the phosphor sheet comprises:

a support having a sheet shape, and

a phosphor layer including a layer coated on said support with powder of a rare earth oxysulfide phosphor activated by europium of concentration in a range of 0.01 mol% to 3.5 mol%;

a photoelectric conversion film on which said phosphor sheet is layered, and which converts the light from said phosphor sheet into electric charges, wherein the photoelectric conversion film comprises an amorphous silicon film or a single crystal silicon film; and

a charge information reading section having a plurality of pixels in contact with said photoelectric conversion film and reading out the electric charges generated on said photoelectric conversion film for each of the plurality of pixels as image signals of [[by]] the radiation rays,

wherein said phosphor layer has a surface that is layered on the photoelectric conversion film, wherein the surface has surface roughness of 0.5 μm or less in average roughness Ra.

12. (Canceled).

13. (Currently Amended) A radiation detector according to claim 11,

wherein each of the plurality of pixels comprises a pixel electrode, a charge storage capacitor storing the electric charges generated on said photoelectric conversion film via the pixel electrode, and a switching element provided corresponding to the charge storage capacitor, wherein the switching element reads ~~and reading~~ out the electric charges.

14. (Original) A radiation detector according to claim 11,

wherein said radiation detector is a radiation plane detector with the plurality of pixels arranged in an array form.

15. (Canceled).

16. (Canceled).

17. (Canceled).

18. (Currently Amended) An apparatus for radiographic examination, comprising:

a radiation source irradiating radiation rays to a specimen; and

a radiation detector according to claim 11 configured to detect ~~detecting~~ the radiation rays transmitted through the specimen as image signals.

19. (Canceled).

20. (New) A phosphor sheet for a radiation detector according to claim 5,

wherein the average particle size of the rare earth oxysulfide phosphor powder is in the range of 6 μm to 10 μm.